REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 2 May 2005. Responsive to the rejections made in the Official Action, Claims 1 - 3, and 5 - 10 have been amended to more clearly clarify the inventive concept of the Applicant. Claim 4 has now been cancelled from this case.

The Examiner has rejected Claims 1 –2 and 9 - 10 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 3, 7 and 8 of co-pending Application No. 10/681,810. Attached to this Amendment is a Terminal Disclaimer with the requisite fees being paid which is believed to obviate the Examiner's rejection.

Prior to a discussion of the prior art relied upon by the Examiner in the Official Action, it is believed that it would be beneficial to briefly review the subject Application in view of the inventive concept of the Applicant. The subject Application is directed to a thin lighting panel 2 formed of a thin plate 20which may be mounted to a cell phone or other type electronic device which optimizes the light passing through the key presses 111 of a cover 11 as is clearly seen in Fig. 2. One of the great problems associated with providing the user with a key press 111 which is clearly visible to a user even under low lighting conditions, is that there be sufficient light emitted through the key press 111 in order to permit the user easy access to the key press 111 even in a low light visibility area. Cell phones or other electronic devices generally operate under low current and thus lighting members 21 such as LEDs which use a low current power are extremely useful. However, LEDs do not provide for a high luminance output and thus are not oftentimes useable.

The subject invention permits the use of a lighting member 21 which is mounted adjacent a thin plate 20 for dispersal and optimization of the light being passed through the thin plate 20 and ultimately reflected and refracted through the key presses 111.

In order to accomplish this object, the subject invention provides for the thin lighting plate 20 to include both upper and lower surfaces where both the upper surface and the lower surface are provided with patterned regions (generally notches or concave contours) as is shown in Fig. 3. In this manner, light passing longitudinally through the thin plate 20 will be reflected from the lower patterned regions and will be directed to the upper surface regions where the upper surface regions are aligned with the key presses 111. In this manner, more light is reflected through the key presses 111 to ultimately allow a low current LED to be used and obtain a visible key press 111 even in low light conditions.

The Examiner has rejected Claims 1 – 5 under 35 U.S.C. § 102 in view of the Qiao et al. Patent No. 5,485,291. The Qiao reference is directed to a lighting panel which is contoured and adapted to provide a uniformly thin large area of lighting with facet grooves formed on a lower surface thereof. As is seen in the Qiao reference, there is provided a planar major upper surface area 21 and what is termed a shaped major lower surface 22 which lies parallel to the upper layer surface. The shaped lower surface includes optically flat facets 23/24 with the facets being inclined upwardly at some predetermined angles. The concept of the Qiao reference is to provide a uniform light dispersion across the upper surface 21 and thus the facets 23/24 are only formed within the lower surface 22 to permit light rays 25 to be reflected in a uniform manner across the upper surface of the panel.

In contradistinction, the subject invention concept which is trying to optimize the light rays from the lighting member 21 to predetermined patterned regions 22 on the upper surface of the thin plate 20 utilizes both patterned regions 22 on the upper surface of the thin lighting panel in combination with notches or concave contours formed within the lower surface of the thin plate 20 to provide increased reflection of the light from lighting members 21 through the predeterminedly position patterned regions 22 on the upper surface of the plate 20.

In this manner, a low current lighting member 21 such as an LED may be used not to disperse light (as is shown in the Qiao reference) but rather to provide a concentration of light through the thin plate 20 mounted on the lighting panel 2 in predetermined areas.

Thus, the Qiao reference does not provide: "... and a plurality of second pattern regions formed within said lower surface of said thin plate for reflecting light from said lower surface to said upper surface thereby optimizing light emitted through said first patterned regions.", as is now defined in amended independent Claim 1. The Qiao reference is directed to a system which is not structured for the concentration of light rays to predetermined patterned regions but rather is directed to a system which disperses light in an even manner. The Qiao reference does not direct itself to the elements of the subject invention concept as defined by now amended independent Claim 1 and does not provide for the objects and purposes of the subject invention system.

The Examiner has rejected Claims 6 – 7 under 35 U.S.C. § 103 as being obvious in view of the Qiao et al. reference when taken in combination with the Ryu et al. Patent 6,612,722. The Ryu et al. reference has been cited by the Examiner for teaching a light guide panel for back light having a light guide panel with patterned regions with first parts adjacent to the lighting member and second parts which are remote from the lighting member. The Examiner has also cited the Rye et al. reference for teaching first/second parts of patterned regions having small patterns adjacent a light member and large patterns remote from the light member.

The Ryu et al. reference is directed to a light guide panel for backlights having a grouping of cells 21 which may be formed in a multiplicity of arrangements. In general, the Ryu references uses micro cells 211 and teaches that each of the cells 21 may be formed of a plurality of micro cells 211 with quantities of light and scattering angles adjusted in a manner so as to increase luminance and permit uniformity of luminance. The Ryu reference additionally shows that groupings of cells 21 may be formed on the surface of the light guide panel 2 or may be formed in depressions formed on the surface of the light guide panel 2.

The Ryu et al. reference much in the manner of the Qiao reference provides for protrusions or depressions on one surface of the light panel. Neither the Ryu reference nor the Qiao reference when taken alone or in combination provide for the concept or elements of providing a thin plate 20 with patterned regions formed on an upper surface of the thin panel and within a lower surface of the thin plate. Neither the Ryu reference nor the Qiao reference utilizes the concept of providing additional reflections from the lower surface of the panel to predetermined areas of the upper panel to enhance and optimize the light passing through the upper surface.

Thus, even if the Ryu reference and the Qiao reference are taken alone or in combination, they do not teach: "... a plurality of first patterned regions formed on said upper surface of said thin plate ... and a plurality of second patterned regions formed within said lower surface of said thin plate for reflecting light from said lower surface to said upper surface thereby optimizing light emitted through said first patterned regions.", as is necessary to now amended independent Claim

1. Additionally, Claims 6 and 7 are ultimately dependent upon now amended independent Claim 1 and are believed to show patentable distinction over the Qiao reference and the Ryu reference when taken alone or in combination.

The Examiner has rejected Claims 6 – 10 under 35 U.S.C. § 103 as being obvious in view of the Qiao reference when taken in combination with the Yu-San Patent No. 6,402,334. Yu-San is cited by the Examiner for showing a light pipe for a display panel having a display region to correspond to predetermined patterned regions with the first portion of a patterned region having small members next to the lighting member and a second portion of the pattern remote from the lighting member to include patterns closely arranged having larger members. Yu-San is further cited by the Examiner for showing a plurality of patterned regions with display regions having display words or designs and operating key presses.

The Yu-San patent is directed to a light pipe for use in a backlight display panel. The Yu-San reference provides for a flat based panel 26 having a key pad with various keys 28. Light emitting diodes 32 are located on the face of the panel 26 near one of the edges with LEDs coinciding with the spacing between notches 18 which are received within the notches. A display panel 36 is placed on the light pipe panel 10 and pluralities of panels such as 10/26/36 are assembled. The light pipe panel 10 is then sandwiched between the base panel 26 and the base panel 36 and the LEDs are fitted into the notches 18 to allow emission of light which is introduced into the panel 10 through the edge 16.

In particular, the patterns or notches used in the Yu-San reference are adapted for insertion of LEDs. In opposition, the subject Patent Application system is directed to only a light member (such as an LED) to be located at an edge of the thin plate and utilizes the reflection of the patterned regions or notches or concave contours on both the upper surface and lower surface of the thin plate to optimize light passing through the key presses.

Thus, the Yu-San reference does not provide for the patterned regions to be formed on both the upper and lower surfaces of a thin plate as is necessary to the subject Patent Application system as defined in independent Claim 1 as now amended. Claims 6 – 10 are ultimately dependent upon now amended independent Claim 1 and include the limitations of Claim 1 and are thus believed to be patentably distinct from the combination of the Qiao reference and the Yu-San reference for at least the same reasons as has been discussed for now amended independent Claim 1.

The Yu-San reference in the same manner as the Qiao reference does not provide for: "… a plurality of first patterned regions formed on said upper surface of said thin plate … and a plurality of second patterned regions formed within said lower surface of said plate for reflecting light from said lower surface to said upper surface thereby optimizing light emitted through said first patterned regions.", as is necessarily defined in now amended independent Claim 1 as well as dependent Claims 6 – 10.

It is not believed by the undersigned attorney that the combination of the Qiao et al. reference, the Ryu et al. reference or the Yu-San reference neither disclose or suggest a combination of elements which form the inventive concept of the subject Application for the purposes and objectives of the Applicant. It is not believed that any of the references either taken alone or in combination anticipate or make obvious the subject Patent Application system as now defined by the amended claims 1 – 3 and 5 – 10.

The references cited by the Examiner but not used in the rejection have been reviewed and are believed to be further remote from the subject invention concept as defined by the now amended claims than that used by the Examiner in his rejection.

It is now believed that the subject Patent Application has been placed in condition for allowance and such action is respectfully requested.

Respectfully submitted,
FOR ROSENBERG, KLEIN & LEE
Morton J. Rosenberg
Morton J. Rosenberg
Registration #26,049
Dated: 7/27/05

Rosenberg, Klein & Lee
3458 Ellicott Center Drive Suite 101
Ellicott City, MD 21043
(410) 465-6678

Customer No.
04586